$$\therefore Q=\begin{vmatrix} 1, & -a_1^2, & -a_2^2, & -a_3^2,\ldots \\ 1, & s(s-2a_1), & 0, & 0, \ldots. \\ 1, & 0, & s(s-2a_2), & 0, \ldots. \\ 1, & 0, & 0, & s(s-2a_2),\ldots \\ \ldots\ldots & \ldots\ldots\ldots\ldots\ldots\ldots & & \end{vmatrix} \div \begin{vmatrix} 1, & -a_1, & -a_2, & -a_3, \ldots \\ 1, & s-2a_1, & 0, & 0, \ldots \\ 1, & 0, & s-2a_2, & 0, \ldots \\ 1, & 0, & 0, & s-2a_3, \ldots \\ \ldots\ldots & \ldots\ldots\ldots\ldots\ldots\ldots & & \end{vmatrix}$$

Let $u=(s-2a_1)(s-2a_2)(s-2a_3)\ldots\ldots(s-2a_n)$.

$$\sum \frac{a_i^2}{s-2a_i}=\frac{a_1^2}{s-2a_1}+\frac{a_2^2}{s-2a_2}+\frac{a_3^2}{s-2a_3}+\ldots\ldots$$

$$\therefore Q=\frac{s^{n-1}u\left\{s+\sum\frac{a_i^2}{s-2a_i}\right\}}{u\left\{1+\sum\frac{a_i}{s-2a_i}\right\}}=\frac{s^{n-1}\left\{s+\sum\frac{a_i^2}{s-2a_i}\right\}}{\left\{1+\sum\frac{a_i}{s-2a_i}\right\}}.$$

ERRATA. On page 52 of last issue, line 3 from bottom, read = before $\frac{1}{c}$, and in the denominator read $\sqrt{a^2-x^2}$ for "$\sqrt{a^2+x^2}$"; on page 53, line 15, extend the radical sign over a^2-x^2 and b^2-x^2, in the numerators.

PROBLEMS.

64. Proposed by A. H. BELL, Box 184, Hillsboro, Illinois.

Solve the equations:

$$a^2x=(2x^2-a^2)\sqrt{x^2+y^2}\ldots\ldots (1).$$
$$b^2y=(2y^2-b^2)\sqrt{x^2+y^2}\ldots\ldots (2).$$

65. Proposed by COOPER D. SCHMITT, A. M., Professor of Mathematics, University of Tennessee, Knoxville, Tennessee.

Prove that $\cos\frac{n\pi}{7}+\cos\frac{3n\pi}{7}+\cos\frac{5n\pi}{7}=\frac{1}{2}$ or $-\frac{1}{2}$, according as n is *odd* or *even*.